ON A SMALL COLLECTION OF MOLLUSCA FROM THE NORTHERN TRANSVAAL.

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A small collection of land shells, made in the Shilwane and Sibasa districts by the Rev. H. A. Junod in 1919 and 1920, is of unusual interest, for the reason that no systematic collecting has been done in the Northern Transvaal since the late seventies of last century, when valuable work was carried out there by A. E. Craven, and the results published in two or three papers by himself and the late Edgar Smith.

Craven's shells were for the most part gathered on the east slope of the Drakensberg range in the vicinity of Lydenburg goldfields, and the Shilwane district is also on the east slope of the Drakensberg, only 60 miles north of Lydenburg. As might be expected, therefore, several of the same species occur in both collections, and comparisons are important as bearing on the correctness of Craven's identifications, which were made at a time when only a hundred species of land shells had been described from South Africa, and nearly every new find referred to one of the old names.

Craven's complete list, subject to the latest generic classification, is as follows :—

Gulella crassilabris (Crvn.).
,, *infans* (Crvn.).
Mikrokerkus symmetricus (Crvn.).
Helicarion transvaalensis (Crvn.).
,, *vandenbroecki* (Crvn.).
Trachycystis planti (Pfr.).
Edouardia drakensbergensis (Smith).
Achatina dimidiata, Smith.
,, *smithi*, Crvn.
,, *transvaalensis*, Smith.
Euonyma lineata (Krs.).
,, *turriformis* (Krs.).
Tropidophora kraussianum (Pfr.).

Nine of the foregoing species were new to science, and at least two of the remainder were probably misnamed.

Details of Junod's collection, with descriptions of new species and notes on others, are given below :—

Genus Gulella, Pfeiffer.

Gulella sibasana, sp. nov. Pl. II, Fig. 5.

Shell comparatively large and solid, somewhat tubby, rimate, silky, pale olivaceous. Spire produced, sides slightly convex about the fifth whorl ; apex (four whorls) rounded to a blunt point. Whorls 9, almost flat, the first five gradually increasing, remainder almost equal in size ; the first two smooth, remainder covered with strong, close, regular, curved, oblique transverse striæ. Suture shallow. Aperture subquadrate, rounded at base, with a strong sinus at the top of the outer lip. Peristome white, shining, expanded and slightly thickened. Rima shallow but well defined. Dental

processes consisting of a deeply inset and hardly noticeable unpointed columellar fold; a strong, moderately entering, concave plait at the outer angle of the paries; a rather small tooth, single in the Type but occasionally found with a smaller, second denticle above it, half-way up the outer lip, corresponding to a single, small exterior cavity; and a very small tubercle on the extreme left of the base.

Long. 9·8, lat. 5·0; apert. alt. 3·2, lat. 1·8; last whorl 4·5 mm.

Hab.—Luvimbi, Sibasa (Junod); Pepiti Falls (Harries).

Of five specimens from Luvimbi, two have a single tooth on the outer lip, as described in the Type; in two this tooth is bifid, there being a smaller cusp just above the other; while in the fifth, the upper cusp is represented by a minute swelling, only visible under a strong lens. The shells vary in size from about 10·1×5·2 to 9·8×5·0 mm.

Through the kindness of W. Falcon and H. C. Burnup a further series of the same species has been available for examination, strengthening considerably its specific value. It was collected by C. Harries at Pepiti Falls, also in the Sibasa district, and consists of ten shells, in nine of which the tooth on the outer lip is single and in the other bifid; while all show a distinct basal tubercle. They represent a rather larger race than the Type set, ranging from 10·9×6·25 up to 12·5×6·3 mm., but are absolutely conspecific.

In order to effect a thorough understanding of the new species, it is necessary to discuss at some length the small group of rather conspicuous shells to which it belongs, whose distribution appears to be restricted to the Northern and Western Transvaal. I have been most kindly assisted in my study of this group by Mr. H. C. Burnup, whose opinion, in which I fully concur, adds greatly to the value of the following conclusions.

Four species have so far been differentiated: *crassilabris*, Craven, 1880; *distincta*, M. & P., 1893; *eximia*, M. & P., 1898; and *euschemon*, M. & P., 1909.

I have already [1] had occasion to unite *euschemon* with *crassilabris*; it now becomes necessary to place *eximia* in the synonymy of *distincta*. Both these names were applied to a species remarkable for possessing a minute sinual denticle near the top of the outer lip, opposite the parietal plait, a feature by which, if constant, it may be readily recognized. *Distincta* was described as being 12×4½ mm. in size, with two other teeth on the outer lip and a small one on the base; *eximia* as a rather smaller form, 9×4 mm., with either one or two teeth on the outer lip and no mention of any on the base. There is, however, a basal swelling, or tubercle, which in some specimens of the smaller form becomes a distinct denticle, while intermediates in size occur which completely bridge the gap

[1] Ann. South African Mus., xi (1912), p. 70.

between the forms as originally described, and it appears impossible to retain *eximia* as even a varietal name, unless, indeed, it be allowed to stand for the smaller shells with a single tooth on the outer lip and little appearance of a basal swelling.

The group is now, therefore, reduced to three species, which may be distinguished as follows:—

Gulella crassilabris (Crvn.) (= *euschemon*, M. & P.): One parietal lamella; one tooth on outer lip; a slight swelling, sometimes obsolete, at the base.

Gulella sibasana, Conn.: One parietal lamella; one tooth, sometimes bifid, on outer lip; one basal tubercle of varying development.

Gulella distincta (M. & P.) (= *eximia*, M. & P.): One parietal lamella; one sinular denticle; one tooth, sometimes bifid with cusps more or less widely separated, on outer lip; one basal swelling or tubercle of greatly varying development.

In addition to the difference in dentition set forth above, in *G. sibasana* the basal tubercle is situate slightly more to the left, or higher up on the columellar lip, and the rima is rather more open than in either *crassilabris* or *distincta*; the geographical distribution, moreover, tends to confirm the conchological grouping, *distincta* (cum *eximia*) being known, so far, from Middelburg and Barberton in the east; *crassilabris* (cum *euschemon*) from Belfast, Pruizen, Pietpotgietersrust, and Lydenburg in the north centre, and *sibasana* from the extreme north of the Transvaal.

It may be noticed that in this revision there is no mention of *G. infans* (Crvn.) or its numerous allies. The explanation is that they are not represented in Junod's collection, and that, although *infans* is an almost perfect miniature of *crassilabris*, its group seems to be entirely distinct and need not enter into the foregoing calculations.

Genus Kerkophorus, Godwin-Austen.

Kerkophorus perfragilis, sp. nov. Pl. II, Figs. 4*a–c*.

Shell subnautiloid, flattened, imperforate, extremely thin, glossy, transparent, pale olivaceous-corneous; in the Type there is a very faint, narrow, pale rufous band just above the periphery, but this is absent in the generality of specimens. Spire almost flat; apex submammillate. Whorls 3½, rapidly increasing, the first microscopically rather sparsely punctate, remainder covered with very faint, somewhat irregular transverse striæ, corresponding with the lines of growth. Suture shallow. Aperture elongate-ovoid; peristome simple, acute, projecting far more above than at the base; columella weak, concave, margin not sufficiently reflexed to form a rima.

Diam. maj. 15·5; min. 12·3; alt. 7·8; apert. alt. 7·5; long. 8·9 mm.

Hab.—Shilwane district.

Type in my collection.

A flatter, proportionately more elongate form than *K. phœdimus* (M. & P.), which appears to be its nearest relative among known species of *Peltatinæ*.

Genus Trachycystis, Pilsbry.

Trachycystis planti (Pfeiffer).

Hab.—Shilwane district.

The Natalian shell to which this name has usually been applied of late years is remarkable for the expansion of the peristome in adult examples, a feature peculiar, among South African species of *Trachycystis*, to itself and to *T. calorama*, M. & P. There is no mention of such expansion in any early description of the species, nor does it occur in any of the earlier series in the British Museum; on the other hand, the latter are not as large as more recently collected individuals, and may easily be slightly immature.

Junod's shells are of rather a rufous shade, while Craven's, in the British Museum, are of paler yellow, but all appear to be conspecific. None are quite adult or show any trace of expanded peristome, and I cannot separate them from the older typical examples of *planti* from Natal.

Trachycystis junodi, spec. nov. Pl. II, Figs. 1*a–c*.

Shell small, subglobose, narrowly rimate, very thin, not very glossy, semitransparent, greenish corneous. Spire just raised sufficiently for each whorl to project above the next; apex sharp. Whorls 5, rather convex, last very rounded; rather rapidly increasing, protoconch (first whorl) microscopically punctate, remainder covered above and beneath with close, regular, curved transverse striæ, crossed by equally close spiral striæ. Suture narrow but well defined. Aperture very slightly flattened lunate; peristome simple, acute. Columella very weak, margin narrowly reflexed, almost concealing the narrow, but deep, rima.

Diam. maj. 8·3; min. 7·1; alt. 5·5; apert. alt. 5; lat. 4·2 mm.

Hab.—Mt. Manotsuri, Shilwane district, 4,000 feet.

Type in Kimberley Museum.

A fine new species, with no very close allies.

Trachycystis shilwaneensis, spec. nov. Pl. II, Figs. 3*a–b*.

Shell small, subconic globose, narrowly umbilicate, very thin, rather dull, semitransparent, pale rufous-corneous. Spire somewhat exserted, sides slightly convex, meeting at an angle of 95°. Whorls $5\frac{1}{4}$, rather flat, last very round; rather gradually increasing; protoconch ($1\frac{1}{4}$ whorl) microscopically punctate, with very faint transverse striation when nearing the other whorls, which are covered all over with very close, faint, transverse, crossed by finer, equally close, spiral striæ. Suture small, but clear. Aperture lunate; peristome simple, acute. Columella weak, margin narrowly

triangularly reflexed, half concealing the narrow, but deep, umbilicus.

Diam. maj. 5·7 ; min. 5·0 ; alt. 4·2 ; apert. alt. 2·7 ; lat. 2·7 mm. The largest specimen seen measures : Diam. 6·2×5·2 ; alt. 4·5 mm.

Hab.—Mt. Manotsuri, 4,000 feet ; Elim ; Sibasa.

Type in Kimberley Museum.

Not unlike *T. inclara* (Morel.), in which, however, the umbilicus is far less open and the spiral sculpture hardly visible under a magnification of fifty, which shows this important feature very clearly in the new species.

Trachycystis subpinguis, sp. nov. Pl. II, Figs. 2*a–b*.

Shell small, depressed-conoid, perforate, thin, smooth, glossy, transparent, pale corneous. Spire but little raised, sides straight, apex sharp. Whorls 6, slowly and regularly increasing, rounded, bluntly subcarinate on the upper portion of the periphery and sloping thence to the base ; the 1½ apical microscopically densely, but faintly, punctate, remainder sculptured all over with faint, rather distant, nearly straight, transverse striæ interspersed with closer, much fainter ones crossed by extremely close and faint wavy spiral striæ ; suture simple, well defined. Aperture oblique, lunate ; peristome simple, acute ; outer lip practically straight in profile and hardly receding ; columella short, weak, concave, margin shortly and narrowly reflexed, not concealing the minute umbilicus.

Diam. maj. 5·7 ; min. 5·2 ; alt. 3·6 ; apert. alt. 2·6 ; lat. 3·0 mm.

Hab.—Natal. Pietermaritzburg (Connolly ; Burnup).

Transvaal. Mt. Manotsuri (Junod).

This is the species mentioned in my Revised Reference List (1912) as having been mistaken for the *Helix pinguis* of Krauss, which, however, is described as having only 4½ whorls in a diameter of about 7 mm., and if properly represented in the British Museum is a larger form of darker colour. The occurrence together of the three Natalian species, *T. planti*, *T. subpinguis*, and *Lauria dadion*, so far north of the limits which might be expected to their distribution, is distinctly remarkable.

Genus Edouardia, Gude.

The full reasons for the adoption of this generic name for nearly all the African species heretofore placed in *Pachnodus* or *Conulinus* will be given in a work now in course of publication ; they may therefore be omitted from the present article.

Edouardia drakensbergensis (Smith). Pl. II, Figs. 6*a–b*.

This species has never been figured, so by kind permission of the Assistant Keeper of the Mollusca, I append an illustration of the Type set in the British Museum. It was collected near Lydenburg

and consists of two shells, hardly mature, one dark corneous and the other pale fulvous in colour.

The species is rather widely diffused in the neighbourhood of Shilwane, with the darker coloured shells greatly predominating. They vary a little in diameter, but the generality of specimens are about 17 mm. in height and $13\frac{1}{2}$ in breadth. In its typical form *E. drakensbergensis* is therefore more slender than *natalensis*, Krs., a typical example of which is 17×15 mm., and less carinate than *carinifera*, M. &. P., but the less slender examples approach very nearly the unicoloured mutation of Krauss' species.

Edouardia mcbeaniana (Bnp.).

1905. *Ena* (*Pachnodus*) *mcbeaniana*, Bnp., Proc. Malac. Soc. vi, p. 302, pl. 16, figs. 1–2.

Hab.—Shilwane, 2,000 feet.

A single typical example from the above locality marks the most northern limit yet recorded for this species, whose southern boundary seems to be near Pretoria.

Subsp. *lemaneensis*, nov.

A small series from Lemane, in the Spelonken district, are so considerably more slender than the typical form that I think it desirable to give them a varietal name. My reason for this is because it appears that, although examples of the *Edouardia* and *Rhachis* groups may differ enormously within each species in coloration and marking, they remain remarkably constant in contour. Since contour, therefore, rather than coloration, must be accepted as the gauge of specific value, any noteworthy departure from the normal is of considerable importance.

The local race differs from Type in comparative diameter, which is only $11{\cdot}2 \times 10{\cdot}0$ mm. in a shell 16·1 mm. long, whereas it attains $13{\cdot}0 \times 11{\cdot}3$ mm. in a typical example 15·0 mm. in length; the columellar margin, also, is rather less broadly reflexed and the umbilicus more narrow than in the normal form, but the bluntness of the carination agrees with that of *mcbeaniana* rather than any other species.

Edouardia transvaalensis (M. & P.).

1893. *Buliminus transvaalensis*, M. & P., Ann. Nat. Hist. xii, p. 105, pl. 3, fig. 6.

Hab.—Elim.

Two examples, agreeing perfectly with the Type. This is an arboreal species, which in live condition is usually found coated with pith or mud. It must be very nearly akin to *Pachnodus herbigradus*, Pilsbry, which inhabits the Belgian Congo.

Genus Rhachis, Albers.

Rhachis chiradzuluensis (Smith).

1899. *Buliminus* (*Rhachis*) *chiradzuluensis*, Smith, Proc. Zool. Soc., p. 586, pl. 33, fig. 40.

Hab.—Mt. Manotsuri, Shilwane district, 4,000 feet, on a bush.

A noteworthy new locality for this beautiful little species, which was described from Nyasaland and has also been collected as far north as Mombasa. The Type set are all bandless above the periphery, the markings being confined to two narrow rufous bands, one on or just beneath the periphery, the second about 1½ mm. below it. In Junod's examples these bands are double the breadth, and there is a narrow third band above the periphery, midway between the sutures; in other respects the shells are perfectly conspecific and easily recognizable from Smith's figure.

As the generic name *Buliminus* is no longer available, and *Ena*, which replaced it, is not applicable to the South African genera, I leave this species in the remaining group in which Smith placed it; it will, however, probably be found to be quite distinct when the anatomy of the various members of the *Rhachis* group becomes better known.

Genus Pupisoma, Stoliczka.

Pupisoma orcula (Bs.).

Hab.—Luvimbi, Sibasa; Elim; Mt. Manotsuri, 4,000 feet.

Genus Lauria, Gray.

Lauria dadion (Bs.).

Hab.—Mt. Manotsuri, Shilwane district, 4,000 feet.

A single specimen, taken alive, gives a remarkable extension to the limited range of this species. In. *L. dadion*, as well as in its near allies *L. farquhari* and *L. tabularis* (M. & P.), there is frequently a slight, bluntly pointed swelling half-way up and rather deep-set on the columella, showing through the shell as a white line observable within the umbilicus: in Junod's shell this swelling is more prominent than in any other of twenty which I have examined from Cape Town and Karkloof, and seems to be represented by a clear furrow, rather than a white line, in the umbilicus; it will be interesting to see whether this variation is constant if further examples are ever collected in the same neighbourhood.

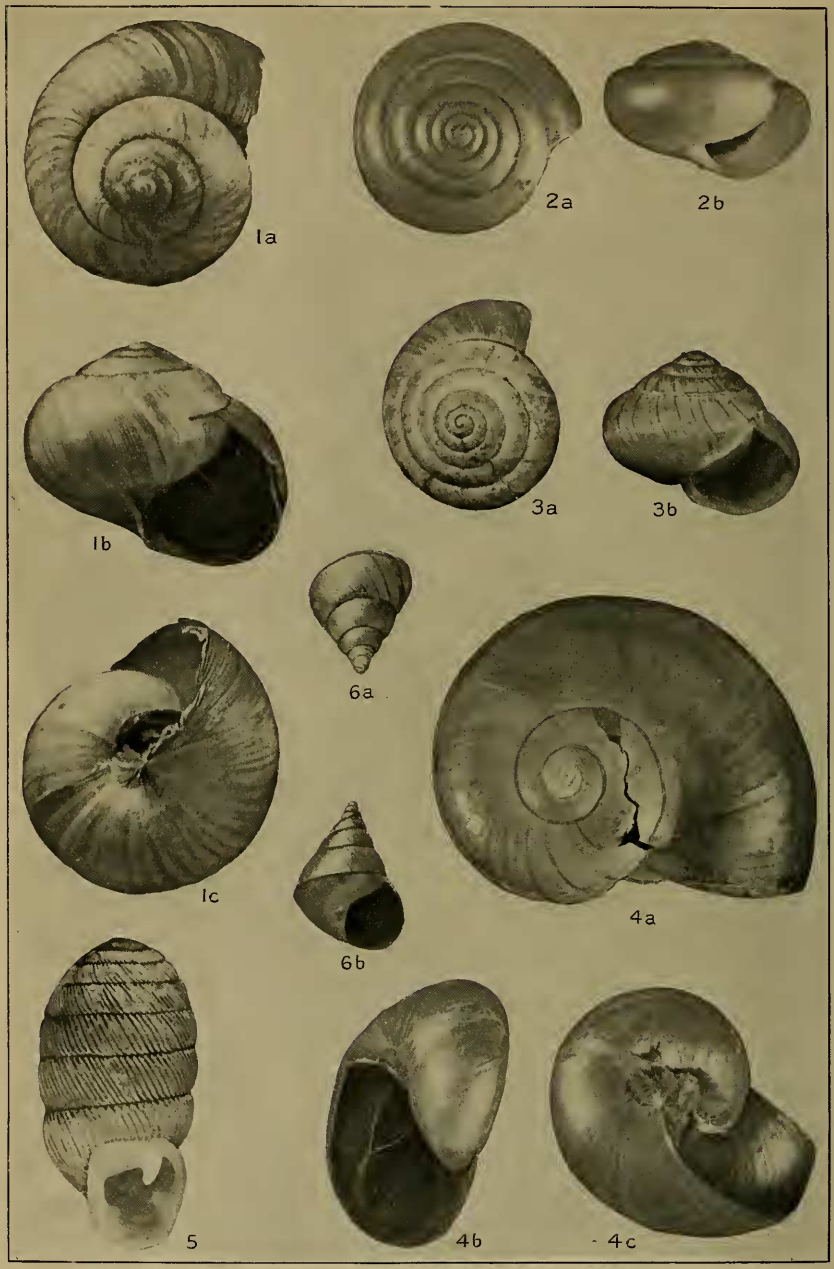
Genus Achatina, Lamarck.

Achatina dimidiata, Smith.

1878. *Achatina dimidiata*, Smith, Quart. Journ. of Conch. i, p. 348.
1904–5. *Cochlitoma dimidiata*, Smith, Pilsb., Manual, xvii, p. 95, pl. 32, fig. 6.

Hab.—Shilwane district.

The northernmost record for this species, whose southern known limit is Majuba.



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To face p. 77.]

Achatina cf. *greyi*, Da Costa.

1907. *Achatina greyi*, Da Costa, Proc. Malac. Soc. vii, p. 226, pl. 20, fig. 1.

Hab.—Sibasa.

Two examples, apparently conspecific with the single shell from Salisbury, which I recorded in 1912 under the above name. The fresh material, however, casts considerable doubt on the correctness of that record, though not affecting the synonymy which accompanied it. The shells are much larger (85×52 mm.) than any of the Types of the *greyi* group, and if it can be proved that the latter are a truly small race, rather than merely immature shells, it will not be possible to retain the name for the Rhodesian and Transvaal specimens.

I hope to survey the puzzling *craveni* group, to which all the foregoing belong, in a work now in course of completion, but the whole subject is an extremely difficult one, partly owing to the multiplication of new specific names on insufficient material, and partly owing to the great alteration which takes place in the appearance of an Achatinoid shell between the times when it is fresh and comparatively young, and when it is old, dead, and bleached, and it would be futile to embark on such an undertaking without long preparation.

Genus Tropidophora, Troschel.

Tropidophora insulare (Pfr.).

Hab.—Shilwane district.

Craven's *T. kraussianum*, Pfr., doubtless refers to this common species.

EXPLANATION OF PLATE II.

Fig.

1*a–c*. *Trachycystis junodi*, sp.n. × 4¼.
2*a*, *b*. *T. subpinguis*, sp.n. × 5¼.
3*a*, *b*. *T. shilwaneensis*, sp.n. × 5.
4*a–c*. *Kerkophorus perfragilis*, sp.n. × 3⅓.
5. *Gulella sibasana*, sp.n. × 4¼.
6*a*, *b*. *Edouardia drakensbergensis* (Smith). × 1.